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News Summary

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A professor at George Washington University has been arrested in Pennsylvania for using false names to obtain teaching positions at two state colleges there. Story on Page 2.

Sheldon L. Glashow, a Nobel laureate at Harvard University, has proposed building a giant accelerator able to search for oil and gas—and Texas A&M University may take him up on it. Story on Page 14.

Applications for next fall's freshman class are down slightly from a year ago. Story on Page 12.

The Administration has decided not to revise regulations to enforce federal legislation barring discrimination against the handicapped. Story on Page 15.

A House subcommittee has approved a measure placing new restrictions on the use of animals in laboratory experiments. Story on Page 15.

Women in college administration have not completely won their battle for acceptance by male colleagues. Story on Page 27.

A federal judge has ruled that the City University of New York discriminated against woman faculty members and administrators by paying them lower salaries than it paid men. Story on Page 30.

Writing a college history, an activity that is becoming a respectable scholarly pursuit, is not without professional risks. Story on Page 31.

Libyan students in the United States have been barred from taking courses in aviation and nuclear-related studies at colleges and universities here. Story on Page 25.

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Colleges Struggling to Cope with the Computer Age

By ROBERT L. JACOBSON

For most colleges and universities, coming to grips with the computer age is proving to be much harder than might be expected for institutions where information is such an important commodity.

Indeed, say experts in computing and higher education, only a relatively few campuses are successfully adapting to the latest technological developments. For the most part, they say, academe is not only failing to keep up with the new technology and related demands, but is falling further and further behind.

If the trend persists, those experts say, the ultimate cost—particularly in lost educational opportunities—will be staggering.

But in case after case, colleges are discovering that they don't have the money, personnel, or plans to take adequate advantage of existing technology, let alone the breakthroughs still to come.

"The technology is there," goes the refrain. "What are we going to do about it?"

At the same time, however, an informal consensus appears to be developing among college officials and computer specialists about what the major issues are and, to some extent, how they ought to be handled.

Many college officials see the incipient computer revolution as something more than a pressing academic and administrative challenge, says Russell Edgerton, president of the American Association for Higher Education. It may also provide a chance finally to escape from the "gloom and doom" talk that has enveloped their institutions in recent years, he says.

This week in Washington, Mr. Edgerton's association is holding its annual conference on the theme "Colleges Enter the Information Society." The topic was chosen, he says, in part because of new public awareness of "the connection between education and economic revitalization" through high technology.

The Boom in Microcomputers

From numerous interviews and discussions with campus officials comes a complex and ambitious outline of where higher education may be headed in the computer age.

Technologically, the boom in microcomputers—often called personal computers—is probably the single most important development affecting campuses today.

There are many other important considerations in communications and related technologies, including the need to modernize campus telephone systems. But with desk-top equipment now making computing power widely available, many college officials believe they must radically change how they view the role of computing for administrative

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Computers on the Campus

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Graduate Schools Report Increases in Applications

By MALCOLM G. SCULLY

Many graduate schools at U.S. universities are reporting substantial increases in the number of applicants for next fall.

At some institutions, applications are up not only in such popular fields as engineering and computer science, but also in the humanities and physical sciences—areas that have experienced declines in recent years.

Graduate-school officials attribute the increases at least in part to the poor job market for recipients of bachelor's degrees. Many of this year's college seniors, they say, may be planning to continue their education to avoid unemployment or underemployment.

They also report that some people who have lost their jobs in recent months apparently have decided to apply to graduate schools.

"The economy has a lot to do with it," said George W. Kunze, dean of the graduate school at Texas A&M University, where applications at the end of February were 40 per cent higher than at the same time last year. "A lot of people are coming back to sharpen their skills because they have been laid off."

Mr. Kunze said that in addition to college seniors, the applicant pool for next fall included "a lot of [illegible]—people who

Continued on Page 12, Column 4

U.S. Decides Students Seeking Aid Won't Have to Show Draft Papers

By JANET HOOK

WASHINGTON

The Education Department announced last week that it would significantly revise rules for enforcing a new law barring men from receiving federal student aid if they fail to register for the draft.

Department officials said they would drop—at least for the next two years—a requirement that draft-age men provide college officials with copies of their registration documents before they can receive federal aid.

Although that change was regarded as a significant improvement by Congressional and college critics of the earlier rules, the House Subcommittee on Postsecondary Education approved a bill last week that would delay application of the new law for seven months, to allow more time for enforcement procedures to be put in place.

The law linking draft registration and student aid is scheduled to apply to federal grants and loans awarded for college terms that begin after June 30. Under the bill approved by the House subcommittee, HR 2145, the effective date would be postponed until February 1.

That delay is needed, proponents argued, because of the uncertainty and confusion generated by a recent federal court order temporarily barring enforcement of the law.

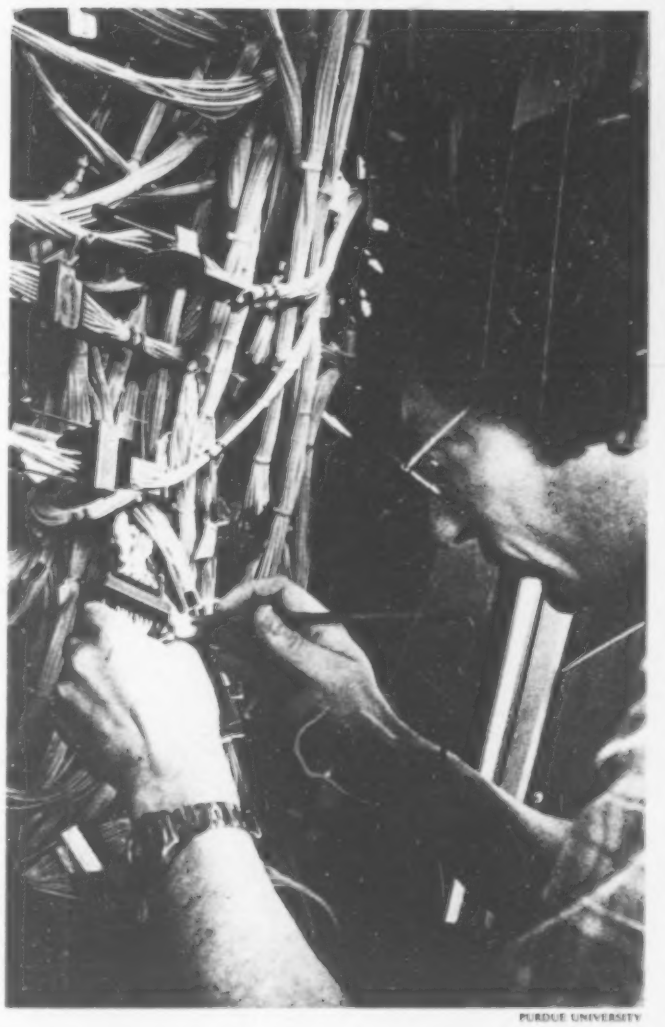
Judge Donald D. Alsop of the U.S. District Court for Minnesota recently issued that injunction pending the resolution of a case before him that challenges

Continued on Page 20, Column 1

Women's Basketball: Recruiting the Stars

Recruiting the superstars of women's basketball has become a competitive business for college coaches. One of the top recruiters is Sonja Hogg, coach of Louisiana Tech University's Lady Techsters, shown at left scouting a high-school game.

For details, see the "Athletics" section which begins on Page 21.



PURDUE UNIVERSITY

An engineer works to connect the more than 100,000 electrical fittings needed to install Purdue's Cyber 205.

Dearth of New 'Supercomputers' Called Threat to U.S. Leadership in Science and Technology

4 American universities now have the giant machines, but experts say that's far from enough to meet current needs of scientists and engineers

By JACK MAGARRELL

WASHINGTON

With the installation of a Cyber 205 at Purdue University early this year, the total number of American universities with "supercomputers" rose to four.

That's far short of enough supercomputers, an elite class of the most powerful computers currently available, says a panel of experts in a report on a study sponsored by the National Science Foundation and the Department of Defense.

While popular attention has been captured by the proliferation of personal microcomputers in classrooms, offices, and homes, there are warnings from the most advanced levels of computer science that "the power of current and projected supercomputers is insufficient to meet existing needs in science, engineering, and technology, both military and civilian."

The panel's report says that U.S. leadership in supercomputer technology and in the use of supercomputers in science and engineering "is seriously undermined by the lack of broad-scale exploration, outside of a few national laboratories, of the scientific and engineering opportunities offered by supercomputing and by a slowdown in the introduction of new generations of supercomputers."

The threat to American leadership is intensified, the report says, by "vigorous governmental programs in the United Kingdom, West Germany, and Japan to make supercomputers available and easily accessible to their research and technological communities."

The Japanese government's supercomputer project is aimed at developing by 1989 a machine 1,000 times as fast as current machines, the report says, adding that "there are no national plans to stimulate the development and use of advanced computer technology in the U.S."

Nobel Laureate's View

The importance of supercomputers to theoretical scientists was emphasized by Kenneth G. Wilson, a professor of physical science at Cornell University and winner of last year's Nobel Prize in Physics.

"Theorists are learning to go beyond simple models to tackle the complexities of real life," Mr. Wilson said in testimony submitted to the House Committee on Science and Technology. "The recent increase in hiring of theorists by industry is a consequence of this trend.

"In order to continue this progress, theoretical scientists must have access to scientific large-scale computing far beyond current supercomputer capabilities; in fact, even the Japanese national superspeed computing project has far too conservative goals to meet U.S. theorists' needs."

Sharing at Colorado State

Besides Purdue, the institutions with supercomputers are Colorado State University, the University of Georgia, and the University of Minnesota.

At Colorado State, use of the Cyber 205 supercomputer, which was installed a year ago, has been shared with government agencies and private industry as well as with other universities.

The National Bureau of Standards has a direct line to the Colorado State computer. Five oil companies are full-time members of the university's Institute for Computational Studies, through which use of the computer is shared.

Edward H. Coughran, assistant to the director of the institute, says that both industries and universities have problems that only a supercomputer can solve, but they do not have enough to justify the purchase of their own multimillion-dollar machine.

Colorado State's supercomputer cost $12-million and was financed by the C.S.U. Research Foundation, which borrowed the money and will repay the loan with payments made by those who use the machine.

The other universities with supercomputers anticipate increased sharing of their machines with outside users in the future.

At the University of Minnesota, where a Cray 1 was installed two years ago, Frank Verbrugge, director of university computer services, says that use of the machine by researchers from other universities has grown slowly because the institutions hadn't budgeted money to pay for the computer time.

The University of Georgia, which has had its Denelcor HEP supercomputer for about eight months, has started offering seminars to researchers from other institutions on how to use it, says James L. Carmon, assistant to the president for computing.

Purdue's supercomputer was purchased with bonding authority granted by the Indiana legislature specifically for improvement of computer facilities, according to Saul Rosen, director of the university's computing center.

Purdue expects within the next year to establish a laboratory, to be called the Center for Parallel and Vector Computing, to study the uses of supercomputers, Mr. Rosen says.

Expert Advice Needed

Peter D. Lax, a professor of mathematics at New York University and a member of the National Science Board, the policy-making arm of the National Science Foundation, headed the "panel on large-scale computing in science and engineering" that submitted its report and recommen-

Computer-Science Professors' Salaries Average $28,069

Faculty members in computer science earned an average basic salary of $28,069 in academic 1981-82, according to a new Chronicle Survey. The professors supplemented that income by earning an average of $8,220 from other professional activities, including summer-school teaching.

The survey found that faculty members at public institutions earned an average nine-month salary of $28,176, a bit above the overall average for computer-science professors. However, they made less—$7,883—in extra income.

The reverse was true for computer scientists at private institutions. The survey found that their average salary was $27,779 and they made $9,121 from other professional activities, which included research, administrative duties, extra teaching, and consulting.

Computer scientists at liberal-arts colleges earned an average salary of $20,905. Their extra earnings averaged $835.

The country's higher-education institutions have from 800 to 900 computer-science faculty members with doctoral degrees, according to estimates.

Computer scientists say the number of faculty members, which is well below the number of positions available, has remained "nearly fixed" for several years.

Since 1980 the universities have produced about 200 graduates with doctorates in computer science each year, according to Joseph F. Traub, chairman of the computer-science department at Columbia University. "Half of these have gone into industry and half have gone into academe," he says.

Mr. Traub says there are about 1,300 jobs advertised each year for computer scientists with doctoral degrees. Over 600 of these are located in academe.

Mr. Traub says computer scientists at research universities, such as Columbia, in geographic areas where there are opportunities for additional income from research and consulting can earn an annual income "close to that of scientists in leading research laboratories" in industry. However, he says, "the total income of faculty members in places with no such opportunities will be lower."

The information on basic salaries and additional income of computer-science faculty members was obtained in a survey conducted for *The Chronicle* by John Minter Associates, a higher-education research organization in Boulder, Colo. —BEVERLY T. WATKINS

	Average annual salary			Average earnings beyond base salary, 1981-82		
	1981-82	1982-83	1-year change	Within the institution	Outside the institution	Total
Private Ph. D.-granting universities	$30,032	$32,924	9.6%	$5,245	$5,960	$16,145
Private institutions granting other graduate degrees	25,141	27,520	9.5%	3,395	3,118	6,057
Private liberal arts institutions	19,245	20,905	8.6%	1,762	548	835
Public Ph.D.-granting universities	30,747	32,931	7.1%	4,359	7,953	12,848
Public institutions granting other graduate degrees	25,308	27,110	7.0%	2,978	4,161	5,466
Public 2-year colleges	22,915	24,363	6.3%	3,051	2,586	5,669
Public institutions						
Professor	33,349	35,326	5.9%	3,832	7,167	11,223
Associate professor	26,899	29,030	7.9%	4,186	2,919	6,889
Assistant professor	22,738	24,625	8.3%	2,884	8,645	6,123
Private institutions						
Professor	31,260	33,817	8.2%	3,270	5,283	9,722
Associate professor	22,725	25,025	10.1%	3,053	3,051	5,108
Assistant professor	20,644	22,397	8.5%	3,058	1,608	500
All public institutions	26,366	28,176	6.9%	3,441	7,574	7,887
All private institutions	25,408	27,779	9.3%	3,744	6,139	9,121
Total	$26,107	$28,069	7.5%	$3,523	$7,187	$8,220

Note: Survey data are based on responses of 259 faculty members from the fall of 1980 through the fall of 1982. All salaries are adjusted to a nine-month basis. Technical inquiries about the survey design should be addressed to John Minter Associates, P.O. Box 107, Boulder, Colo. 80306.

SOURCE: SURVEY FOR THE CHRONICLE BY JOHN MINTER ASSOCIATES

Computer Age Continued from Page 1

and scholarly purposes. No longer can a central campus computer be expected to satisfy all the needs of administrators, faculty members, and students. Now officials must carefully consider—or rethink—who needs to do what with what equipment and in what manner. For most colleges, that probably means determining how to create an efficient "network" out of various kinds of equipment from different segments of the institution.

At one Western university, for example, a dean reports that administrators have become "very frustrated" because they can't seem to get the information they need for their own departments and divisions out of the university's central "mainframe" computer.

"The high priests who control the data say they can't provide it," says the dean, so he's been looking into the possibility of buying a personal computer for his office. Several of his colleagues are doing the same thing, all pretty much on their own initiative.

'It's Chaos'

"Everybody's going out and doing their own little study on computing and saying, 'Here's what we want to have,' " says the dean. "It's chaos."

As an alternative to such disorder, the development of an overall campus computing plan is widely viewed as essential.

Central to that process, the experts agree, is a highly collaborative effort to set priorities and long-term goals. It should involve top campus officials, including the chief executive and his principal deputies, they say, as well as faculty members and students. Local computer specialists should be consulted for their experience and knowledge, but the basic options on campus computing come down to matters of education policy that cannot be delegated to such people alone.

The attitude of campus leaders toward their own computer specialists is sometimes a curious mixture of admiration and reserve. Already in such great demand that their salaries may exceed those of top college officials, the specialists are not always thought to have a solid understanding of their institution's overall purpose and needs.

Consequently, some speakers at conferences, workshops, and seminars on campus computing are cautioning academic officials to take direct responsibility for making the key decisions, instead of leaving it all to the "technologists."

"It's important that you talk to those people and tell them what you want," said James W. Johnson, director of information technology at the University of Iowa, at a recent seminar for administrators. "And if they don't speak English, give them a dictionary and make them talk English, because you people are the ones who are ultimately going to be left holding the bag."

A related issue is how institutions can encourage their own faculty and staff members to acquire and use personal computers. The task can be more difficult than might be anticipated.

At the University of Colorado at Boulder, where Chancellor Harrison Shull has said he wants all 1,100 faculty members to have their own personal computers within two years, Gary D. Devine, director of management systems, says a state law against using public funds for personal property has interfered with plans to share both the cost and ownership of computers with employees.

Many campuses are struggling, meanwhile, to meet rapidly growing instructional demands in computer science. There are frequent reports of students queuing up, often late at night, for access to terminals—and then facing further delays because computing and printing facilities are overloaded. Some institutions, Yale University among them, have curbed the use of computers for word processing and other course work that does not require computing.

Many academic computer experts insist that the hard choices over which equipment and which software to buy, how much, and for what purposes, must depend not only on available resources, but also on how a particular college or university views its mission. Not every institution should try to be a Carnegie-Mellon University, they say, and attempt to provide virtually universal access to computers.

Individual colleges must determine for themselves, say the experts, what is important to them and in what configuration: Administrative computing or instructional applications? Data processing or word processing? A large central computer with many terminals or many self-sufficient desk-top machines? And to what extent do officials want people "down the line" to be able to interact with central computers? Such questions tend to have more practical value the earlier they are raised.

Deciding on Strategy

"What you have to do," says Douglas E. Van Houweling, Carnegie-Mellon's vice-provost for computing and planning, "is decide what your strategy is. Don't start with the technology."

When consumers seem confused by the wide range of computers and program packages on the market, salesmen often ask them, "What do you want the equipment to do?" The same question is probably valid for college and university officials trying to select the "right" combination of hardware and software for their institutions. Different machines and different software do different things, and not all of them are compatible.

The head of program development at a school of public health in the Southwest relates, for example, that officials in two divisions of her institution independently purchased computer systems for data processing and word processing last year only to discover, too late, that the systems couldn't "talk" to each other.

Such stories are not unusual on the campuses these days, yet most computer specialists tend to minimize their long-range importance. Eventually, they say, the industry is likely to make certain that incompatibility is not an issue. Even now, the technology exists to eliminate most of it.

In the meantime, colleges should be more concerned about getting the most computing capacity they can for their chosen objectives, the experts say. Hardware costs are dropping rapidly—"15 to 25 per cent a year on a compound basis," says Carolyn P. Landis, vice-president of EDUCOM, a consortium of about 450 colleges and universities interested in computers and communications technology. Usually more important than the cost of hardware, she says, are the costs of software, personnel, and peripheral equipment.

Like other consumers of the new technology, college officials often wonder if they should postpone new purchases, since computing capacity is rapidly increasing even as prices decline. They also worry that expensive equipment may soon become obsolete.

In response, the experts generally have this advice: Don't wait. Computers ultimately produce such great savings through increased productivity and efficiency that it pays to buy what you can now—leasing the hardware if necessary.

"To not do something is going to cost you," says Charles R. Thomas, executive director of CAUSE, a national association of campus information technologists.

On the other hand, Mr. Johnson of the University of Iowa cautions college officials not to feel pressured into acquiring all the latest hardware and software on the market.

"Just because there's a new, brighter box on the block doesn't mean it's more worthwhile for doing your task," he says. "If you have a small computer, for instance, doing word processing, and everyone's satisfied, then what difference does it make if the new one's got more bells and whistles and lets you access 5,000 records? If you're not doing it, that's irrelevant."

Besides, Mr. Johnson adds, computer hardware generally lasts only five to seven years before it needs to be replaced, but by then it is likely to have paid for itself.

Software is another matter, however. There the consensus appears to be that—for most major applications, at least—it ultimately costs less to buy commercial packages than to ask campus programmers to develop their own. For such do-it-yourself software, Mr. Van Houweling says he takes the highest cost estimate he can get and doubles or triples it. Software development, he warns, is "a very arcane art which very expert people do very poorly at."

How Faculty Members Use Microcomputers

OAK PARK, ILL.

In their teaching, college professors use personal computers most often for mathematical calculations.

But for faculty members' personal use, the microcomputer serves most frequently as an advanced typewriter.

Those findings are reported by TALMIS, a consulting service here for publishers of computer software, on the basis of a survey of 607 college and university faculty members who use microcomputers.

Use in Teaching

The proportions of faculty members reporting various uses of microcomputers in working with students were:

Mathematical computation	60%
Simulation	46%
Presenting instruction	42%
Teaching computer literacy	42%
Teaching programming	41%
Drill and practice	33%
Word processing	30%
Graphics	25%
Searches of data bases	21%
Testing	19%
Educational games	12%
Research and other	5%

The use of microcomputers varies among the academic disciplines.

For example, computation accounts for 34 per cent of the use in social-science departments, compared with 13 per cent in business departments and 7 per cent in education departments.

Education departments, according to the TALMIS survey, made the most use of of microcomputers in teaching computer literacy, which is becoming a recognized aspect of training schoolteachers.

In the liberal arts, drill and practice accounted for 25 per cent of the use of microcomputers and word processing for 21 per cent.

In library courses, 37 per cent of the use of microcomputers is in searching computerized collections of information.

The proportion of faculty members using microcomputers for teaching computer programming is highest in computer-science departments (35 per cent) and business departments (27 per cent).

Personal Use

Faculty members participating in the TALMIS survey reported the following proportions of their total personal use of microcomputers:

Word processing	53%
Computation	45%
Record keeping	34%
Recreation	33%
Creating teaching programs	32%
Graphics	27%
Accounting	12%

Jeanne Dietsch, president of TALMIS, said the survey showed that academic departments spent an average $1,061 per year on programs, or software, for microcomputers.

Departments of computer science spent the most—$1,810 a year—on software, followed by education, $1,070; business, $795; mathematics, $785; science, $620; social science, $410, and liberal arts, $365.

Members of science, mathematics, and liberal-arts departments develop more of their software themselves than do members of other departments, Ms. Dietsch said. Education departments, in contrast, get a larger share of their software from commercial publishers—in part, she said, to acquaint students with the variety of software on the market.

—JACK MAGARRELL

U.S. to Publish 'Kit' on Computer-Based Training

A *Computer-Based Training Starter Kit* is scheduled to be published next month by the federal government. Written by representatives of 13 U.S. agencies, it is directed mainly at trainers in government but contains information that also may be useful in colleges and universities.

Free copies of the publication may be requested from C.B.T. Starter Kit, Internal Revenue Service, Training and Development Division, Services Section, PM:HR:T:S, 2221 Jefferson Davis Highway, Arlington, Va. 22202.

Following are some of the references cited in the kit:

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CAI Sourcebook, by Robert I. Burke, (Prentice-Hall, Inc., 200 Old Tappan Road, Old Tappan, N.J., 07675; 206 pages; $18.95 hardcover, $11.95 paperback; 1982).

Costs, Benefits, and Productivity in Training Systems, by Greg P. Kearsley, (Addison-Wesley Publishing Co., Reading, Mass., 01867; 160 pages; $16.95; 1982).

Guidelines for Establishing and Managing a Computer-Based Education Site, by Larry Francis (Plato Publications, 252 Engineering Research Laboratory, 103 South Matthews Avenue, University of Illinois, Urbana, Ill. 61801; $4, plus $3 shipping and handling, prepaid; October, 1977).

Implementation and Operation of Computer-Based Education, a report of the Computer-Based Education Research Laboratory, by A. Lynn Misselt and others (Plato Publications, 252 Engineering Research Laboratory, 103 South Matthews Avenue, University of Illinois, Urbana, Ill. 61801; $3.50, plus $3 shipping and handling, prepaid; August, 1980).

A New Decade: Computer-Based Instruction, conference proceedings (Association for the Development of Computer-Based Instructional Systems, 409 Miller Hall, Western Washington University, Bellingham, Wash. 98225; 300 pages, $20; 1980). Recommended articles: "How Computer-Based Instruction Was Cost-Justified in the Federal Aviation Administration," by John S. Buck and Patricia S. Beardsley; "Instructional Design Considerations and Teaching Strategy Implementation Using Microcomputers," by Robert M. Caldwell; "Important Criteria to Consider for Evaluating Instructional Simulations in Computer-Based Education," by Monica Berang Fortner.

ARTICLES

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"Classroom Use of Microcomputers," edited by James E. Eisele (*Education Technology*; October, 1979).

"Computer-Assisted Instruction: Current Trends and Critical Issues," by Jack A. Chamber and Jerry W. Sprecher (*Communications of the ACM*, Association for Computing Machinery; June, 1980).

"Computer-Assisted Instruction: A Discussion of Some of the Ideas for Would-Be Implementers," by Glyn Holmes (*Educational Technology*; September, 1982).

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"The Computer in Performance and Instruction: Or, How to Tell the True Color of a Chameleon," by Richard Davis (*NSPI Journal*, National Society for Performance and Instruction; November, 1979).

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"Microcomputers in Industrial Education," conference proceedings, by Sheldon Fischer (Society for Applied Learning Technology, 50 Culpeper Street, Warrenton, Va. 22186; 120 pages; $40; 1979).

"Microcomputer-Based Training in Business and Industry," by Greg P. Kearsley, Michael J. Hillelsohn, and Robert J. Seidel (*Journal of Educational Technology Systems*, Vol. 10, No. 2; 1981-82).

CHRONICLE SURVEY

Applications for 1983 Freshman Class Down 1 Pct. from Last Year

A majority of private colleges and universities had received more freshman applications by January 31 of this year than on the same date a year ago, according to a new Chronicle Survey. However, the number of applications was down at a majority of public institutions.

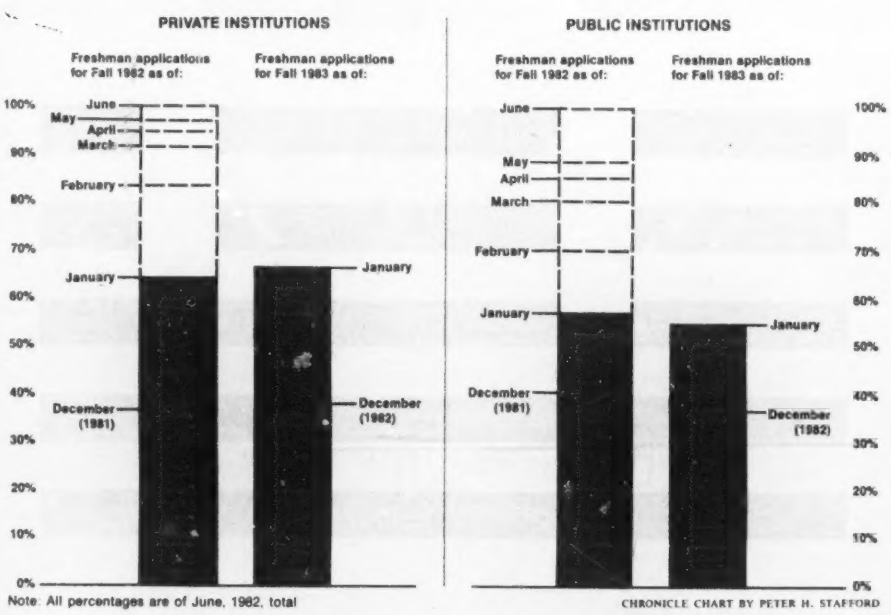
The survey found that 54.4 per cent of private colleges and universities had more applications for next fall's freshman class, while 54.9 per cent of public institutions had fewer applications.

For all institutions, public and private, the number of applications was down by 1 per cent at the end of January, compared with a year ago.

Private institutions with from 500 to 1,000 students experienced the largest increase—6 per cent—in the number of freshman applications. Public institutions with from 2,500 to 5,000 reported the largest decrease—19 per cent.

The only public institutions that reported an increase, the survey found, were those with from 10,000 to 20,000 students. Their applications were up by 2.3 per cent over last year.

The survey of freshman applications was conducted for *The Chronicle* by John Minter Associates, a higher-education research organization in Boulder Colo.



Note: All percentages are of June, 1982, total

CHRONICLE CHART BY PETER H. STAFFORD

Changes in Number of Freshman Applicants

January 31, 1983, compared with January 31, 1982

	Per cent change in average (a)	Per cent reporting increase	Per cent reporting decrease	Per cent change		
				Low (b)	Median (c)	High (d)
Private colleges and universities						
Research and Ph.D.-granting	− 1.3%	34.8%	65.2%	− 8.1%	− 3.5%	+ 4.6%
Comprehensive	+ 2.5%	58.3%	41.7%	− 8.0%	+ 1.5%	+ 7.6%
Liberal arts	+ 0.9%	55.5%	42.2%	−10.0%	+ 3.4%	+19.2%
Regions						
Northeast and Mid-Atlantic	− 0.1%	55.0%	45.0%	− 8.0%	+ 0.4%	+ 8.3%
Great Lakes and Plains	− 0.3%	51.3%	46.2%	− 9.3%	+ 1.2%	+11.3%
Southeast	+ 1.3%	59.4%	40.6%	−15.1%	+ 7.6%	+19.9%
West and Southwest	+ 3.1%	54.5%	42.4%	−10.7%	+ 4.1%	+ 9.9%
Enrollment						
500 – 999	+ 6.0%	49.0%	44.9%	−12.6%	0.0%	+24.0%
1,000 – 2,499	− 0.2%	54.9%	45.1%	−10.2%	+ 1.2%	+12.1%
2,500 – 4,999	+ 2.6%	63.6%	36.4%	− 6.7%	+ 3.1%	+ 8.0%
5,000 – 9,999	− 1.4%	50.0%	50.0%	−10.0%	− 2.2%	+10.7%
10,000 and over	+ 0.3%	41.7%	58.3%	− 7.0%	− 2.8%	+ 4.0%
All private institutions	**+ 1.0%**	**54.4%**	**43.8%**	**− 8.8%**	**+ 1.6%**	**+12.0%**
Public colleges and universities						
Research and Ph.D.-granting	− 0.4%	47.5%	52.5%	− 7.1%	− 0.4%	+12.3%
Comprehensive	− 6.2%	42.6%	55.7%	−13.8%	− 2.6%	+12.4%
Regions						
Northeast and Mid-Atlantic	− 4.4%	54.5%	40.9%	−13.2%	+ 0.7%	+17.2%
Great Lakes and Plains	− 1.3%	39.1%	60.9%	− 9.3%	− 2.8%	+ 6.2%
Southeast	+ 3.7%	51.6%	48.4%	− 6.1%	+ 0.1%	+21.1%
West and Southwest	− 4.5%	37.5%	62.5%	−13.7%	− 5.4%	+ 7.2%
Enrollment						
500 – 2,499	− 4.0%	55.6%	44.4%	−11.0%	+ 4.2%	+18.8%
2,500 – 4,999	−19.0%	42.9%	57.1%	−21.3%	− 8.8%	+ 2.3%
5,000 – 9,999	− 5.9%	39.1%	56.5%	−14.6%	− 2.0%	+13.4%
10,000 –19,999	+ 2.3%	50.0%	50.0%	− 7.3%	− 1.4%	+12.3%
20,000 and over	− 1.9%	41.0%	59.0%	− 7.1%	− 1.0%	+ 9.1%
All public institutions	**− 4.8%**	**43.8%**	**54.9%**	**−10.6%**	**− 1.3%**	**+12.6%**
All institutions	**− 1.0%**	**50.7%**	**47.7%**	**− 9.2%**	**+ 0.2%**	**+12.3%**

(a) Percentage change in mean number of applications by January 31, 1983, compared with the mean for a year earlier.
(b) The bottom one-fourth of the institutions reported changes smaller than the percentage shown.
(c) Half of the institutions reported changes greater than the percentage shown.
(d) The top one-fourth of the institutions reported changes greater than the percentage shown.
Note: Survey data are from a stratified random sample of 230 four-year colleges and universities, excluding those with enrollment under 500.

SOURCE: SURVEY FOR THE CHRONICLE BY JOHN MINTER ASSOCIATES

Graduate Schools Continued from Page 1

had left graduate school before completing their doctoral dissertations.

Gail Gere, director of graduate admissions at Rensselaer Polytechnic Institute, where applications were up 20.2 per cent at the end of February, said, "Our seniors are definitely concerned about their job possibilities."

However, Ms. Gere added, seniors in engineering and computer science also have been considering graduate school because they have begun to realize that undergraduate education simply does not cover enough ground to keep them conversant with their rapidly evolving fields.

Applications to Rensselaer's graduate programs in computer science were up 53.2 per cent over February, 1982, she said.

Several graduate-school officials said they had expected the growth in high-technology fields, but were surprised by the renewed interest in the humanities and physical sciences. Among the increases in the latter fields:

▶ At the University of Chicago, graduate applications by the middle of March were up 10 per cent in the humanities and up 14 per cent in the physical sciences.

▶ At Cornell University, increases in the number of applicants to programs in the humanities and physical sciences accounted for much of a total increase of 8 per cent by the end of February. Alison P. Casarett, dean of the graduate school, said that applications in the humanities rose from 737 last year to 855 by the end of February this year.

▶ Applications to the graduate school of arts and sciences at Bryn Mawr College were up 11 per cent over a year ago.

▶ At the University of Michigan at Ann Arbor, where total applications this year were about the same as last year, applications to programs in the humanities were up. "Our recent drop-off in the humanities has now disappeared," said Byron Grosebeck, associate dean of the graduate school.

'Extra Arrow in Their Quiver'

Ms. Casarett said many new college graduates in the humanities were applying to graduate school because of the poor job market.

"I think the kids aren't getting jobs," she said. "They want to be competitive, and they think that this is the extra arrow in their quiver that will make them competitive."

However, several graduate-school officials have also speculated that students interested in academic careers in the humanities have begun looking beyond the immediate job shortage in higher education and are planning for a time when the academic job market is expected to improve.

"Since it normally takes six or seven years to earn a Ph.D., I suspect that some of these applicants are looking to the early 1990's, when the market should be pretty decent," said Mr. Grosebeck of the University of Michigan.

And F. Gregory Campbell, a special assistant to the president at the University of Chicago, noted, "There are a number of people who think that by the time this group of students completes graduate education, the academic job market will require more Ph.D.s."

Increase May Fade Later

Graduate-school officials stress that the evidence for the increase is anecdotal. They won't know how significant the rise is until all the applications are in and until they see how many of the students who are offered admission actually enroll.

"It may well be that applications are higher now than in years past, but they may fall off when the process is completed," said Richard D. Fulton, dean-in-residence at the Council of Graduate Schools.

While most graduate schools encourage students to apply early, many of them will accept applications well into the spring.

Mr. Fulton said there were at least two factors that could make the increase in applications seem bigger than it actually is:

▶ Students may be applying earlier than usual because they want to get an early start on finding scarce financial aid. At Cornell, for instance, applications were running more than 12 per cent ahead of last year at the end of January, and about 8 per cent ahead at the end of February.

▶ For the same reason, individual students may be applying to a larger number of graduate schools. Several deans said they had heard speculation about such "shotgun applications," but added that they did not know yet how widespread the phenomenon was.

Mr. Kunze of Texas A&M said that if the increases in applications to graduate engineering programs hold up over the next several years, the present shortage of highly qualified faculty members in those areas could be alleviated.

"There has been an enormous effort by the National Science Foundation and other agencies to encourage engineers to go on to graduate school," said G. Philip Manire, dean of the graduate school at the University of North Carolina at Chapel Hill. "Maybe that effort is beginning to pay off."

Shortage of Agriculture Scientists Found

WASHINGTON

Steadily declining enrollments in agricultural colleges have begun to produce shortages of trained scientists, nutritionists, and other professionals in agriculture-related fields, according to the U.S. Department of Agriculture.

Terry B. Kinney, Jr., administrator of the department's Agricultural Research Service, said that between now and 1985 the country will need nearly 60,000 graduates annually from baccalaureate programs in agriculture.

Despite those opportunities for employment, he said, a recent study supported by his agency estimated that only 51,976 graduates will be produced each year.

The Agriculture Department estimated that the problem would be compounded in the next decade, because the number of high-school graduates will decrease by 25 per cent from 1978 to 1991.

David J. Mugler, associate dean of agriculture at Kansas State University, who conducted the survey of agriculture enrollments on which the U.S.D.A. based its estimates, said undergraduate enrollment in agriculture had dropped 15 per cent in the last five years. —KIM McDONALD

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News Summary

Articles on inside pages

College and university officials are worried about the widespread dissemination of information that relates to betting on intercollegiate games. Story on Page 17.

The president of the Public Broadcasting Service termed a "national disgrace" a proposal to turn over to commercial users television frequencies now reserved for educational purposes. Story on Page 3.

Microcomputers may replace books as the principal device by which students learn, some educators are predicting. Story on Page 9.

Contributions that most colleges make to pension plans will continue to be exempt from Social Security taxes. Story on Page 13.

The Supreme Court has been asked to decide whether pension plans can legally differentiate between male and female retirees. Story on Page 21.

Professors in such high-demand fields as business and engineering receive higher salaries than their colleagues in other disciplines. Story on Page 21.

Military history is more than just "kings and battles," as a recent book by William McNeill demonstrates. Story on Page 25.

A report commissioned by underground leaders of Poland's outlawed trade union, Solidarity, documents widespread repression of academics and college students in that country. Story on Page 19.

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$50-Million Asked to Reverse Decline in Soviet Studies

By MALCOLM G. SCULLY

WASHINGTON

Congress has been asked to spend $50-million to reverse what many scholars and government officials have described as a dangerous decline in the quality and the quantity of American scholarship on the Soviet Union.

"Bit by bit, the apparatus that was built up after the Second World War to give us our national capability for expert knowledge and analysis of the U.S.S.R. and Eastern Europe is coming apart," said Vladimir I. Toumanoff, executive director of the National Council for Soviet and East European Research.

Mr. Toumanoff, whose council was established in 1978 to develop and sustain basic research on the Eastern bloc countries, was testifying in favor of the "Soviet-Eastern European Research and Training Act of 1983," HR 601, introduced by Rep. Lee H. Hamilton, Democrat of Indiana, and Rep. Paul Simon, Democrat of Illinois.

The Senate version, S 873, was introduced by 10 members, including Sen. Richard Lugar, Republican of Indiana, who said the legislation was especially needed because "traditional sources of support for Soviet studies—namely the universities and foundations—are hard-pressed to meet numerous other demands

Continued on Page 8, Column 1

5 Student and Faculty Groups Call on Universities to Curb Disruptions of Speeches

Heckling at Berkeley, Kansas State, Minnesota cited

By PAUL DESRUISSEAUX

WASHINGTON

In the wake of recent disturbances on college campuses that resulted in the cancellation or curtailment of speeches by public figures, several national organizations that represent faculty members, students, and administrators have issued a joint statement urging all campuses in the United States to take steps to insure that the "hecklers' veto" does not stifle freedom of speech.

"The 'hiss and boo,' when they go beyond brief expressions of opposition and become instruments to silence those with whom one disagrees, are inappropriate at any public gathering, but especially in places of higher learning," said the statement. "It pains us to acknowledge that any of our campuses, even for brief periods, have not been open to free speech and reasoned debate."

The statement—called "Invited Speakers and Academic Freedom: A Call to Action"—was endorsed by the American Association of University Professors, the American Council on Education, and three student groups: the National Coalition of Independent College and University Students, the National Organization of Black University and College Students, and the United States Student Association.

According to the statement, the obligation of academic institutions to insure free speech on their campuses is all the more apparent "when attempts to suppress this freedom come from members of our own ranks."

Among the incidents that prompted the organizations to issue the statement were disruptions of campus lectures by Jeane J. Kirkpatrick, U.S. Ambassador to the United Nations; Eldridge Cleaver, former leader of the Black Panther Party; and Sheik Ahmed Zaki Yamani, the oil minister of Saudi Arabia.

The texts of two statements issued last week on the heckling of campus speakers appear on Page 11.

Last week protesters shouted down Mr. Yamani from the rear of a crowded auditorium at Kansas State University before he started speaking. When the protests began, the oil minister left the stage while the

Continued on Page 10, Column 4

Campuses Trying to Control Religious Cults

By LAWRENCE BIEMILLER

Gregory S. Blimling, dean of students at Louisiana State University, remembers a telephone call from a man who said his daughter, an L.S.U. student, had joined a religious cult on the campus.

"He wanted help and the support of the university in getting his daughter kidnaped," Mr. Blimling says. "I told him we couldn't condone that kind of activity, and recommended that he get a lawyer."

That phone call five years ago stirred his concern about cults and the nature of their activities on the L.S.U. campus, Mr. Blimling says. Now he calls cults "an increasing problem."

Louisiana State, he says, has had representatives of several cults on its campus at different times, including the Rev. Sun Myung Moon's Unification Church, The Way International, and the International Society for Krishna Consciousness, whose members are usually known as Hare Krishnas.

"One of the difficulties is finding out how many students this is happening to," Mr. Blimling says. "Once they become involved, they often pick up and leave the university without saying why." Such departures, he says, are lost in the university's overall attrition rate.

Resurgence and Decline

Mr. Blimling is one of many administrators who agree that religious cults have found college campuses to be among their more profitable recruiting grounds in recent years.

But, they say, cult representatives do not seem to have been successful in meeting their membership goals, which in some cases are set for them by their superiors in other cities. Nor do many of the student organizations that the cult recruiters establish—so as to be able to take advantage of campus services and facilities—seem to last long: When recruiters detailed to one campus by a religious cult leave to work elsewhere, the student groups they led frequently become dormant.

The result is an uneven pattern of resurgence and decline among the cults' organizations on individual campuses—a pattern that makes it difficult for student-affairs administrators to keep track of cults operating at their own colleges, often under names that give no clue to the groups' activities or affiliations.

Many campus administrators, especially those who work closely with students, say that cult representatives, in their efforts to attract and retain members, employ deceit, harassment, and sophisticated mind-control techniques.

Such charges are routinely denied by cult spokesmen, who protest that their theologies have become the target of discrimination by supporters of established religions and that their political ideologies, often stridently conservative, earn them the animosity of liberals.

"You feel that you are a person chosen by God to be involved in a historic mission to save the world or to save mankind. And after you start to accept that, anything goes." —Gilbert Alexander

An interview with a campus cult organizer, Page 6

In 1982, says Mr. Blim-

Continued on Page 6

FACT-FILE

Colleges and Universities Among the Top 500 Defense Department Contractors, 1982

	Amount of contracts (add 000)	Rank in top 500
Johns Hopkins University	$235,517	13
Massachusetts Inst. of Technology	216,562	18
Illinois Institute of Technology	44,418	43
University of California	35,345	52
Georgia Institute of Technology Research Institute	26,689	63
Stanford University	22,783	73
University of Texas	15,720	86
University of Dayton	13,505	90
Pennsylvania State University	12,254	93
New Mexico State University	11,745	96
University of Washington	10,388	104
Carnegie-Mellon University	10,028	107
University of Southern California	9,854	110
Utah State University	9,431	113
University of Illinois	8,957	118
University of Maryland	7,237	142
University of Rochester	6,976	148
University of New Mexico	6,566	152
Columbia University	5,468	164
California Institute of Technology	5,355	165
Cornell University	4,872	173
Ohio State U. Research Foundation	4,674	177
University of Wisconsin	4,611	179
Yale University	4,204	182
University of Michigan	4,095	184
University of Pennsylvania	3,790	194
Georgia Institute of Technology	3,789	195
Oregon State University	3,485	208
University of Arizona	3,450	209
University of Massachusetts	3,433	210
Virginia Poly. Institute & State U.	3,389	213
Princeton University	2,855	229
Boston College	2,811	231
Florida State University	2,786	232
University of Miami	2,752	236
Oklahoma State University	2,746	237
George Washington University	2,736	238
Harvard University	2,736	239
Boston University	2,702	241
University of Denver	2,635	247
University of Minnesota	2,459	258
Purdue U. Research Foundation	2,430	260
University of Utah	2,387	264
New York State U. Research Foundation	2,314	271
Rensselaer Polytechnic Institute	$2,305	272
University of Hawaii	2,214	276
Texas A&M U. Research Foundation	2,153	279
University of Florida	2,143	280
University of Colorado	2,073	283
Lehigh University	2,034	286
University of Rhode Island	2,018	287
Brown University	1,942	294
Northeastern University	1,920	296
Northwestern University	1,916	297
New York University	1,896	299
University of Pittsburgh	1,817	308
Colorado State University	1,806	310
Case Western Reserve University	1,744	315
Georgetown University	1,730	317
North Carolina State University	1,718	319
University of Iowa	1,703	320
University of North Carolina	1,676	325
New York Polytechnic Institute	1,626	328
Michigan State University	1,619	331
University of Tennessee	1,531	345
Texas Technical University	1,508	347
Stevens Institute of Technology	1,469	358
University of Virginia	1,415	364
Duke University	1,390	368
Wentworth Inst. of Technology	1,387	369
New Mexico Institute of Mining and Technology	1,340	374
University of Kansas	1,287	380
Clemson University	1,273	384
University of Connecticut	1,241	389
Michigan Technological University	1,231	391
Drexel University	1,230	393
University of Central Florida	1,132	409
Louisiana State University	1,070	424
Rutgers University	1,024	429
Syracuse University	1,003	437
Howard University	982	441
University of Missouri	963	448
Washington State University	957	449
Emmanuel College (Mass.)	955	450
University of Alabama	917	466
Arizona State University	852	482
Washington University (Mo.)	849	483

SOURCE: U.S. DEPARTMENT OF DEFENSE

Scientific Advisers to Interior Department Screened by Republican Party Officials

WASHINGTON

Scientists who advised the Interior Department on the environmental impacts of offshore development say they were annoyed to learn that officials of the Republican National Committee had screened them before the department decided whether to extend their terms on an advisory panel.

"None of our discussions had a damn thing to do with politics," said Jack Anderson, a marine biologist who served for two years on the department's Outer Continental Shelf Advisory Board.

Mr. Anderson, who works in Sequim, Wash., for the Battelle Memorial Institute, was among 14 scientists reviewed early last year by the Republican National Committee at the request of Derrell P. Thompson, a special assistant to Interior Secretary James G. Watt.

The committee recommendations were contained in a memo obtained by Sen. Dale L. Bumpers, Democrat of Arkansas. Secretary Watt did not appoint to the board 10 of the 14 scientists, including Mr. Anderson, beside whose names the committee had written No. Those not appointed included James K. Mitchell, a professor of geography at Rutgers University, and Donald Boesch, executive director of the Louisiana Universities Marine Consortium, both former members of the panel.

Mr. Mitchell, who served as chairman of the panel for two years until December, 1981, said Interior Department officials originally expressed an interest in extending the terms of the members of his board. But "basically nothing" happened, said Mr. Anderson, after the members said they were interested in staying on the board.

'Particularly Offensive'

An aide to Senator Bumpers has asked Interior Department officials to release any additional documents they used to solicit information about scientists on the agency's 140 advisory panels.

"This practice is offensive enough for any advisory committee," the aide said. "But Mr. Bumpers considers it particularly offensive for a scientific advisory committee."

An Interior Department spokesman acknowledged that Secretary Watt had directed agency officials to ask the Republican National Committee, special-interest groups, and the National Academy of Sciences to review scientists before they were named to advisory committees.

"He wants to pick the best people to advise the agency," the spokesman said.

The release of the Interior Department memo, which revealed that agency officials had consulted political groups before appointing scientists to advisory panels, follows recent allegations that the Environmental Protection Agency used "hit lists" from conservative groups to rid its advisory panels of scientists with particular political or environmental viewpoints.

Last year Agriculture Secretary John R. Block stopped officials in his department from continuing political checks on scientists who reviewed research grant applications submitted to the agency after some of the scientists learned of the practice and complained about it.

Sen. Lowell P. Weicker, Republican of Connecticut, who chairs the Senate Subcommittee on Energy Conservation and Supply, plans to hold hearings to investigate how the Interior Department selected scientists for its advisory panels.

—KIM McDONALD

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'In' Box

A hefty boost in retirement benefits is expected to begin next month for those receiving annuity payments from the College Retirement Equities Fund. The projected increase stems from the strong performance of the stock market in recent months.

Officials of the pension company have not yet determined the exact amount of the increase, but it will probably be 30 per cent to 40 per cent, said William T. Slater, a senior vice-president of both C.R.E.F. and the Teachers Insurance and Annuity Association.

Each April the pension company recalculates the monthly payments it will make to annuitants over the next year, based primarily on the performance of C.R.E.F.'s investments in common stocks during the fiscal year ending March 31.

The market surge that is benefiting current retirees also means that premium payments for educators not yet retired are purchasing fewer "accumulation units" in C.R.E.F.'s portfolio, Mr. Slater noted. Benefits ultimately paid to those people will be affected by stock performance in their retirement years.

▪

An organization of photocopying outlets is reportedly planning a counteroffensive against publishers that have sued New York University and nine of its faculty members for copyright infringement. The case is pending in a federal district court.

Kinko's Graphics, a national chain of copy shops, says in a press release that a new committee of the National Association of Quick Printers will fight "the campaign of intimidation" by the Association of American Publishers.

Paul J. Orfalea, president of Kinko's and head of the new committee, said he had scheduled a strategy session in Washington April 18 with representatives of the American Association of University Professors and other interested parties.

▪

A combination of tight budgets and spiraling travel costs could make attending professional conventions prohibitive for many faculty members, according to three economics professors at Memphis State University.

Writing in the *Eastern Economic Journal*, the economists note that between 1970 and 1980 air fares increased almost 135 per cent, while the price of out-of-town lodgings increased almost 125 per cent. During that time, they say, faculty salaries declined about 18 per cent after adjustments for inflation.

The authors—Howard P. Tuckman, Barbara H. Tuckman, and Thomas O. Depperschmidt—note that departmental subsidies usually cover only a small portion of a faculty member's expenses for conventions.

In a 1980 survey of 158 economics departments, the authors found that the subsidy averaged $85.50 and that about three-fourths of the departments either had not increased their travel budgets in the past year or had actually reduced them.

Personal & Professional

Employers Should Bear Legal Responsibility for Unequal Pensions, Supreme Court Told

By JANET HOOK
WASHINGTON

Employers who offer retirement plans that pay lower pension benefits to women than to men are violating federal civil-rights law and should not be allowed to shift the blame to the insurance companies that they select to operate annuity programs, the Supreme Court was told last week.

Hearing arguments in a case challenging a deferred-compensation program offered to employees of the Arizona state government, the Court was asked to rule that pension plans cannot legally differentiate between male and female retirees simply because women as a group live longer than men.

Nathalie Norris, a state employee, contended that Arizona's retirement program illegally discriminated on the basis of sex because it included a life-annuity option that would pay her some $30 a month less than would be received by a male retiree who had made equal contributions to the system.

Implications for TIAA-CREF

Arizona's lawyer told the Court that the state should not be blamed for the practices of private insurance companies that use separate life-expectancy tables to calculate benefits for men and women. The sex-based actuarial tables, widely used in the insurance industry, result in lower monthly annuities for women because the average woman is expected to collect benefits over a longer period than is the average man.

The Court's ruling in the case could have broad implications for colleges and universities—particularly the approximately 1,500 institutions with pension plans offered by the Teachers Insurance and Annuity Association and the College Retirement Equities Fund, which also use sex-based actuarial tables.

The Justices have not yet said whether they will hear two cases involving challenges to T.I.A.A.-C.R.E.F. plans at Long Island and Wayne State Universities. In those cases, which have been appealed to the Supreme Court, the U.S. Courts of Appeal for the Second and Sixth Circuits split on the issue of whether the use of sex-based actuarial tables violates Title VII of the Civil Rights Act of 1964, which bars sex discrimination in employment.

Court May Delay Action

Some lawyers believe the Court may delay any action on those lawsuits until it decides the Norris case, *Arizona Governing Committee for Tax Deferred Annuity and Deferred Compensation Plans* v. *Norris* (Case No. 82-52).

Amy Jo Gittler, Ms. Norris's lawyer, told the Court that Arizona had violated Title VII's ban on discrimination in fringe benefits by offering an annuity plan that used sex-based actuarial tables. Although women as a group live longer than men, she said, many individual women will not outlive their male counterparts.

Retirement plans "cannot be based on statistics," Ms. Gittler said. "Title VII requires us to treat individuals as individuals, not as group statistics."

Responding to a question from Chief Justice Warren E. Burger, Ms. Gittler said the widespread practice of charging women lower life-insurance premiums because they are expected to live longer would also violate Title VII if the insurance plan were sponsored by an employer.

Arguing in Arizona's defense, John L. Endicott told the Court that the state could not avoid choosing an annuity that differentiates between men and women because all the private plans available used sex-based actuarial tables. "Employers are not responsible for the fact that the open market treats women differently than men," said Mr. Endicott. Ms. Norris's complaint "is not with anything Arizona has done as an employer but with an insurance-indus-

Continued on Following Page

WIDE WORLD

Natalie Norris has sued Arizona over a retirement plan that provides lower benefits to women than to men.

Why Some Professors Earn More than Others: It's a Classic Case of Supply and Demand

By SUZANNE PERRY

What is the market value of a professor these days?

That question has become increasingly important to colleges and universities as they compete with each other, and with industry, for faculty members in such high-demand fields as business, engineering, and computer science.

Further, market factors have led to major—and in some cases widening—salary gaps among disciplines. At some universities, the gaps exist even among teaching assistants.

Many administrators and faculty members say they accept market influences on salaries as a fact of life. But some of them warn that if the trend accelerates, it could lead to friction among faculty members.

"It's getting out of hand," says Paul Strohm, who, as chairman of the English department at Indiana University, hires faculty members at the lower end of the pay scale.

"Faculty members have always accommodated themselves to some kind of discrepancies," adds Mr. Strohm, who is first vice-president of the American Association of University Professors. "But these exaggerated discrepancies within institutions do create problems with collegiality."

50 Pct. More for Business

He concedes that most faculty members have not yet perceived salary gaps between disciplines as an issue, but he says that could be because their "consciousness has not caught up to the extremity of the imbalance."

Oklahoma State University recently published the results of its ninth annual survey of faculty salaries at institutions that are members of the National Association of State Universities and Land-Grant Colleges. (See table, Page 24.) The survey determined the average salaries this year at 73 institutions—by geographic region, by faculty rank, by discipline, and by fields within disciplines.

According to the survey, new assistant professors of business and management earn an average salary of $28,319. That is 50 per cent more than the $18,858 average salary their counterparts in letters are getting.

Last year, the survey showed, the gap between business and letters was about 45 per cent.

Other high-paying fields for new assistant professors in this year's survey are law, $31,738; engineering, $27,429; health professions, $26,610, and computer and information sciences, $26,233. Among the disciplines with comparatively low aver-

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